

REMARKS

Reconsideration and withdrawal of the rejections set forth in the Office Action dated August 28, 2008, is respectfully requested in view of this amendment. By this amendment, claims 1-15 have been amended. Claims 1-15 are pending in this application. The specification has been amended to include references to the subject matter of claims 1, 7, 8 and 11 into Paragraph [0001] and after Paragraph [0037] of the application as published, US 2007/0186711 A1.

Claim 1 has been amended to describe toothed gear wheels being at least involute-free, and effective profiles of said tooth flanks matching in a manner that it comes to planiform contact regions, linearly viewed in cross section, along complete height (h_4, h_5). Support is found in the Specification, *inter alia*, at Paragraphs [0021], [0032] and [0033]. Claims 7 and 8 have been amended to change "the space width" to "a space width between adjacent teeth". This change is made for clarification and is not believed to change the scope of the claim.

It is respectfully submitted that the above amendments introduce no new matter within the meaning of 35 U.S.C. §132.

In the outstanding Office Action, the Examiner objected to claim 1, and rejected claims 7, 8, and 11 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Claims 7 and 8 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claims 1-5, 9, and 12-14 were rejected under 35 U.S.C. §103(a) as unpatentable over Korean reference no. KR20020046534 (hereinafter *Chun*) in view of U.S. Patent No. 6,101,892 to Berlinger, Jr. et al. (hereinafter *Berlinger*). Claims 6-8 were rejected under 35 U.S.C. §103(a) as unpatentable over *Chun* and *Berlinger*, taken further in view of U.S. Patent No. 2,760,381 to Pickles (hereinafter *Pickles*); and claims 10, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chun* and *Berlinger*, taken further in view of U.S. Patent Application Publication No. 2002/0051860 to

Hiroi et al. (hereinafter *Hiroi*). These rejections, as applied to the revised claims, are respectfully traversed.

Objection to Claim 1

The Examiner objected to claim 1, which referred to "the gear wheel are free". This error was corrected by way of amendment.

Rejections Under 35 U.S.C. §112

The Examiner rejected In the outstanding Office Action, the Examiner rejected claims 7, 8, and 11 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the references in claims 7, 8 and 11 to various components were allegedly not in the specification. Claims 7 and 8 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, "the space width" lacked antecedent basis.

Response

Reconsideration and withdrawal of the rejection are respectfully requested.

The components recited in claims 7, 8 and 11 are now recited in the Specification, at Paragraph [0038]. Accordingly the requirements for support in the Specification are met.

Claims 7 and 8 have been amended to change "the space width" to "a space width between adjacent teeth". This is believed to fully overcome the issue of antecedent basis.

It is therefore respectfully submitted that the rejections under 35 U.S.C. 112 should be withdrawn.

Rejections Under 35 U.S.C. §103

The Examiner rejected claims 1–5, 9, and 12–14 under 35 U.S.C. §103(a) as unpatentable over *Chun* in view of *Berlinger*. Claims 6-8 were rejected under 35 U.S.C. §103(a) as unpatentable over *Chun* and *Berlinger*, taken further in view of *Pickles*; and claims 10, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chun* and *Berlinger*, taken further in view of *Hiroi*.

Response

This rejection is traversed as follows. To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. *See Dystar Textilfarben GMBH v. C. H. Patrick*, 464 F.3d 1356 (Fed. Cir. 2006). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. *Id.* at 1366.

Claim 1, as amended, sets forth:

"... tooth flanks ... being involute-free or at least nearly [so] in the force transmission area ... and transition from a concave area ... at least nearly directly to a convex area, effective profiles of said tooth flanks matching in a manner that it comes to planiform contact regions ..."

Thus, Applicants have presented a gear arrangement which permits good engagement of a lubricated system, and exhibits good wear characteristics when plastic gears are used in the type of load conditions experienced in internal combustion engines employing balancer shafts. In

such circumstances, inertial forces and moments of inertia are produced which counteract those produced by the engine. As a result, engine impulses, which are generally absorbed by counterbalance mechanisms and by engine auxiliary gear drives in general can result in rapid wear. (See Paragraph [0034] and the circled area of Fig. 2b.) Similar wear patterns present themselves in other applications, such as geared accessory drives.

Claim 1, both as originally filed and as amended, present contact regions between matching toothed-gears, respectively effective profiles of the tooth flanks and the tooth-gears are defined as laminary or planiform contact regions. This feature distinguishes the gear according to the present application from the construction disclosed by *Chun* and *Berlinger*.

The subject matter of amended claim 1 cannot be derived from any combination of *Chun* and *Berlinger*. Furthermore, a combination of *Chun* and *Berlinger* cannot lead to an engine auxiliary drive as set forth in amended claim 1.

It is respectfully submitted that the *Chun* reference is irrelevant to the claimed subject matter. This is because mere fact that a gear is made of plastic, absent the particular construction, does not suggest the claimed subject matter; rather the claimed subject matter is directed to a construction which permits the use of plastic in engine counterbalance drives and auxiliary gear drives. A person skilled in the art would not need *Chun* in order to find gear wheels formed of synthetic material, and it is acknowledged that gear wheels made of synthetic material are part of state of the art, generally. *Chun* pronounces a need to avoid noise generated by gear play. This could be just one interest of little importance of the person skilled addressing the present problem that a change in material from metal to synthetic material. To the contrary, Applicants address noise, but in terms of a planiform gear mesh.

The change from metal to synthetic material in an engine drive mechanism subject to impulses would present stability problems of gear wheels made from synthetic material. This problem is not even mentioned in *Chun* as far as the abstract and the figures of the *Chun*

application disclose. Therefore, a person skilled in the art would therefore not even consider *Chun* as relevant.

It is therefore submitted that the rejection must rely on the *Berlinger* reference. This leaves the following distinguishing technical features, which cannot be easily thought by a person skilled in the art:

that in the area of forced transmission tooth flanks matching by their special geometry have a direct or at least almost direct transition between a concave area into a convex area,

this effective profile of said tooth flanks matching in a manner that it comes to a planiform or planiform contact region, linearly viewed in the cross section, along complete height,

This defined planiform contact regions, as precisely described in the originally filed application, provides a stress reduction of tooth flanks. The geometry of the tooth flanks defined by claim 1 ensures that these planiform contact regions are given along complete height during meshing of the toothed-gears. (See Paragraphs [0032].)

The cited prior art combination therefore fails to show or suggest Applicants' claimed subject matter as set forth in claims 1–5, 9, and 12–14. It is therefore respectively submitted that the rejection under 35 U.S.C. 103(a) should be withdrawn. Claims 6-8, 10, 11, and 15 depend from claim 1 and are allowable for at least this reason.

Applicant respectfully request that the Examiner withdraw the rejections and the case be passed to issuance.

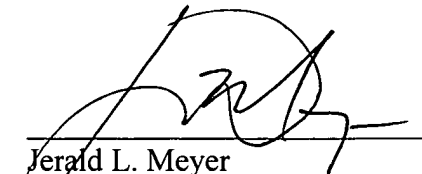
CONCLUSION

In light of the foregoing, Applicants submit that the application is in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner call the undersigned.

Respectfully submitted,
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